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09/815,885	03/23/2001	J. Spencer Grant	9437.11	7395

32642 7590 05/18/2007	EXAMINER
STOEL RIVES LLP - SLC	REIDEL, JESSICA L
201 SOUTH MAIN STREET	

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ONE UTAH CENTER SALT LAKE CITY, UT 84111	3766	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>14 March 2007</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-40</u> is/are pending in the application.

4a) Of the above claim(s) <u>6 and 7</u> is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-5 and 8-40</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>27 June 2006</u> is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>9/01, 2/02</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Applicant's election without traverse of Group I, Claims 1-5 in the reply filed on April 16, 2007 is acknowledged. Claims 6-7 have been withdrawn.

Preliminary Amendment

2.   Acknowledgment is made of Applicant's preliminary Amendment, which was received by the office on April 16, 2007. Claims 8-40 are new and have been added. Claims 1-40 are pending. Claims 6-7 have been withdrawn, as previously mentioned.

Information Disclosure Statement

3.   The information disclosure statement (IDS) submitted on September 19, 2001 and February 22, 2002 have been acknowledged and are being considered by the Examiner.

Drawings

4.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "computer system" and each method step described in the clams must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Typically, one shows the features of the instructions stored on a computer readable medium for carrying out a method/algorithm by use of a flow chart.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to

the Office action to avoid abandonment of the application. Any amended replacement drawing

sheet should include all of the figures appearing on the immediate prior version of the sheet,

even if only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure

must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the

drawings for consistency. Additional replacement sheets may be necessary to show the

renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Specification

5.   The abstract of the disclosure is objected to because it contains phrases such as "the

invention" and "the present invention" which may be implied. Correction is required. See

MPEP § 608.01(b).

6.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a
separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed
150 words in length since the space provided for the abstract on the computer tape used by the
printer is limited. The form and legal phraseology often used in patent claims, such as "means"
and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist
readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

7.   The disclosure is objected to because of the following informalities: Applicant specifies at page 2 of the disclosure that "This application claims priority", however it appears that no such claim was made when the Application was filed. It is respectfully requested that Applicants delete lines 1-4 at page 2 of the disclosure. Appropriate correction is required.

8.   The disclosure is objected to because of the following informalities: section headings should appear in upper case, without underlining or bold type. Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Priority

9.   The Examiner notes that although it appears no formal claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) exists in the current application, the following has been included to expedite the prosecution of the application and to ensure that the history of the application is complete and thorough.

10.   A later-filed application must be an application for a patent for an invention that is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of prior-filed application, Application No. 60/210,270, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Specifically, Application No. 60/210,270 fails to provide support for a computer system comprising a computer readable storage medium comprising instructions for individualizing a heartbeat signal for use in biometric authentication comprising acquiring a plurality of electronic heart beat signals from an individual in an electronic signal form and for each electronic heartbeat signal, measuring a plurality of pre-selected heartbeat waveform features to generate corresponding measurements and weighting the

pre-selected heartbeat waveform features to provide a different statistical weight for each pre-selected heartbeat waveform feature.

Claim Objections

11.   Claims 8, 10-11, 14, 19-21, 26-27, 34-36 and 40 are objected to because of the following informalities: there appears to exist inadvertent typographical errors in the claims rendering the language awkward and/or lacking antecedent basis. As to Claims 8, 14 and 40, the Examiner suggests changing "measuring an additional pre-selected heartbeat waveform to generate a corresponding additional measurement;" to read ""measuring an additional pre-selected heartbeat waveform feature to generate a corresponding additional measurement; and" instead. The Examiner also suggests changing the second to last lines of Claims 8, 14 and 40 to read "preventing weighting of the additional pre-selected heartbeat waveform feature" in order to positively claim the subject matter to which Applicant regards as the invention. As to Claims 10 and 26, "determining the probability of the quotient" should read "determining a probability of the quotient" in order to avoid an antecedent basis problem. As to Claims 11 and 27, "the probability of divergence" should read "a probability of divergence" in order to avoid an antecedent basis problem. As to Claims 19-21 and 34-36, the Examiner suggests changing "the difference" and "the dicrotic notch" to read "a difference" and "a dictrotic notch" instead in order to avoid an antecedent basis problem. Appropriate correction is required.

Claim Rejections - 35 USC § 112

12.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13.   Claims 8, 14 and 40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner is unable to find support throughout Applicant's disclosure for the steps of "for each electronic heartbeat signal, measuring an additional pre-selected heartbeat waveform feature to generate a corresponding additional measurement and preventing the weighting of the additional pre-selected heartbeat waveform feature in the statistical analysis".

14.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

15.   Claims 2-5, 13-14 and 25-40 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

16.   Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a set of instructions for carrying out the method executed by the computer system. As written, the Examiner is unsure as to whether Applicants intend to claim "A computer readable storage medium containing instructions for controlling a computer system to individualize a heartbeat electronic signal for use in biometric authentication" or "A method in a computer system for individualize a heartbeat electronic signal for use in biometric

authentication". The Examiner suggests revising the Claim set of Claim 2 to read something

similar to,

> A computer readable storage medium containing instructions for controlling a computer
> system to individualize a heartbeat electronic signal for use in biometric authentication wherein
> the instructions cause the computer system to:
>   acquire a plurality of electronic heartbeat signals from an individual in an electronic
> signal form;
>   for each electronic heartbeat signal, measure a plurality of pre-selected heartbeat
> waveform features to generate corresponding measurements; and
>   weight the pre-selected heartbeat waveform features to provide a different statistical
> weight for each pre-selected heartbeat waveform feature.

Claims 3-5 and 25-40 depend from Claim 2; the deficiencies of Claim 2 are imputed to all

dependent claims. Although the Examiner has only suggested revision explicitly for Claim 2,

some dependent claims may also need revision in a similar manner and it is respectfully

requested that Applicant carefully review all of the Claims for possible deficiencies and/or

awkward language.

17.   Claims 3-5 recite the limitation "variable/variables per observation" in second line of

each claim. There is insufficient antecedent basis for these limitations in the claims.

Specifically, the Examiner is unsure of what an "observation" is or whether or not Applicants

intend "features" (as previously defined in Claim 2) to be synonymous with "variables".

18.   Claims 13 and 29 recite the limitation "**the average from each corresponding

measurement*" in the fourth line of each clam. There is insufficient antecedent basis for these

limitations in the claims. Specifically, the Examiner is unsure whether or not the measurements

of the plurality of features are averaged together or whether or not a plurality of measurements

for each particular feature are averaged together. The Claim language is awkward and

confusing.

Claim Rejections - 35 USC § 101

19.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

20.   Claims 1-5 and 8-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, Applicants' claims are directed to a judicial exception of 35 U.S.C. 101. The method claims of the present application relate to abstract ideas, rather than practical applications of those ideas. Specifically, the claims do not require any physical transformation and the invention as claimed does not produce a useful, concrete, and tangible result. See MPEP § 706.03(a). To overcome this rejection, the Examiner recommends adding a tangible, useful and concrete method step wherein the invention "employs" the "weighting" by "performing an action" or "completing a method step" using a device/system of some sort. The Examiner suggests adding an additional method step to Claim 1 and an additional instruction to Claim 2 where the "employs" the "weighting" by "performing an action" or "completing a method step" using a device/system of some sort. For example, amending the last lines of Claim 1 to read, "weighting the pre-selected heartbeat waveform features to provide a different statistical weight for each pre-selected heartbeat waveform feature; and authenticating an individual via the computer system based on the weighted pre-selected heartbeat waveform features to permit the individual to activate a device, participate in a transaction, or identify him or himself." Similar changes should also be made to Claim 2.

Claim Rejections - 35 USC § 102

21.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

22.   Claims 1-5, 16-17, 22-24, 31-32 and 37-39 are rejected under 35 U.S.C. 102(b) as being

anticipated by Nathans et al. (U.S. 4,742,458) (herein Nathans). As to Claims 1-5, 16-17, 22-23,

31-32 and 37-38, Nathans discloses a computer system 10 comprising a computer readable

storage medium (i.e. ROM 24) comprising instructions for individualizing a heartbeat signal

comprising the acquiring 56 a plurality of heartbeat signals from an individual in electronic

signal form via signal input 18 (see Nathan Figs. 1 and 2, column 5, lines 24-61 and column 6,

lines 53-65) and for each electronic heartbeat signal measuring a plurality of pre-selected

heartbeat waveform features (both discrete and continuous) to generate corresponding

measurements 58. The measurements are either of slope transitions (i.e. up slope or down slope)

or intervals between such slope transitions (see Nathans Fig. 2 and column 6, lines 66-68and

column 7, lines 1-14). Nathans expressly discloses that the method further includes weighting

the pre-selected heartbeat waveform features against different classification bins to provide a

different statistical weight for each pre-selected heartbeat waveform feature 60-68 (see Nathans

Figs. 2 and 4-7 and columns 10-16). The preamble of Claims 1 and 2 were not accorded any

patentable weight in this case because it merely recites the purpose of the method and the body

of the claim does not depend on the preamble for completeness but, instead, the method steps are able to stand-alone. More specifically, because it is not stated in the body of the claim that the method "authenticates", and because the steps described could be used to classify beats in a pattern recognition manner, the preamble of each claim was not accorded any patentable weight.

23.   As to Claims 24 and 39, each classification bin of Nathans is a threshold value that reflects a desired consistency and selectivity for each comparison of each newly acquired pattern (see Nathans column 4).

24.   Claims 1-5, 15-23 and 30-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Murakami et al. (U.S. 2002/0138768) (herein Murakami '768).

The applied reference has common Inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

25.   As to Claims 1-5, 16-17 and 31-32, Murakami '768 expressly discloses a computer system comprising a computer readable storage medium comprising instructions for individualizing a heartbeat signal for use in biometric authentication comprising acquiring a plurality of electronic heart beat signals from an individual in an electronic signal form and for each electronic heartbeat signal, measuring a plurality of pre-selected heartbeat waveform features to generate corresponding measurements and weighting the pre-selected heartbeat waveform features to provide a different statistical weight for each pre-selected heartbeat

waveform feature (see Murakami '768 Abstract, page 1, paragraph 13, pages 2-3, paragraphs 30-32 and page 4, paragraphs 45-46).

26.   As to Claims 15 and 30, Murakami '768 expressly discloses that an individual is authenticated based on the weighted pre-selected heartbeat waveform features (see Murakami '768 Title, Abstract and pages 3-4, paragraphs 33-44).

27.   As to Claims 18-23 and 33-38, Murakami '768 expressly discloses that the pre-selecgted heartbeat waveform features may be a position of a dicrotic notch, a difference between two peak amplitudes, a difference between two peak rate of changes, how far a dictotic notch is from a zero point, an up slope of a maximum peak or a down slope of a maximum peak (see Murakami '768 pages 2-3, paragraphs 30-32).

Double Patenting

28.   The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees.   A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163

USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may

be used to overcome an actual or provisional rejection based on a nonstatutory double patenting

ground provided the conflicting application or patent either is shown to be commonly owned

with this application, or claims an invention made as a result of activities undertaken within the

scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal

disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR

3.73(b).

29.   Claims 1-5, 15-23 and 30-38 are provisionally rejected on the ground of nonstatutory

obviousness-type double patenting as being unpatentable over claims 1-35 of copending

Application No. 09/814,607. Although the conflicting claims are not identical, they are not

patentably distinct from each other because the current claims are either a broadening of the

scope of the conflicting claims or an obvious variant thereof.

This is a <u>provisional</u> obviousness-type double patenting rejection because the conflicting

claims have not in fact been patented.

Conclusion

30.   The prior art made of record and not relied upon is considered pertinent to Applicant's

disclosure.

Murakami et al. (U.S. 7,133,792) (herein Murakami '792) acquiring a plurality of heartbeats from an individual in an electronic signal form; measuring a plurality of variable features of the electronic signals from the heartbeats, averaging the measurements of each of the signal features; subtracting the average of each measurement from the actual measurement to yield a centroid value; calculate the standard deviation of each measured value; divide the centroid value by the standard deviation for each measured feature to give a T-distribution input value; calculate the probability of the divergence of each measured value using the T-distribution; and input value in a T-distribution analysis.

Murakami et al. (U.S. 2007/0063816) (herein Murakami '816) teaches that biometric markers which may be measured or determined for authentication and activation may include bone density, electromagnetic waves, cardiac rhythms, diacrotic notch readings, blood oxygen levels, capillary density, glucose levels, hematocrit levels, or sub-dermal layer analysis.

Murakami et al. (U.S. 6,483,929) (herein Murakami '929) teaches that a biometric marker related to the circulatory system may be used to provide authentication and security for a device for transaction.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Reidel whose telephone number is (571) 272-2129. The examiner can normally be reached on Mon-Thurs 8:00-5:30, every other Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl H. Layno can be reached on (571) 272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jessica L. Reidel   05/10/07
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